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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,340

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Tadahiro Ohmi

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EXAMINER

CHEN, KEATH T

ART UNIT

PAPER NUMBER

1792

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/584,340	<b>Applicant(s)</b> OHMI ET AL.	
	<b>Examiner</b> Keath T. Chen	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9-22, 28, 29 and 32 is/are pending in the application.
- 4a) Of the above claim(s) 15-17, 19-22, 28, 29 and 32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-14 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/23/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of Group I and Species b, Figure 7, applicant designates claims 9-14 and 18 to species b, in the reply filed on 03/12/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 15-17, 19-22, 28-29, and 32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group II and Species b-e, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 03/12/2008.

### *Claim Rejections - 35 USC § 102*

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen (US 6565661, hereafter '661).

'661 teaches all limitations of:

Claim 9: A shower plate (Fig. 4) having a plurality of ejection holes (#18, col. 6, line 26) adapted to eject a gas (precursor, col. 6, lines 39-54), said shower plate having a diameter (0.2~2 mm, col. 6, lines 34-35) of the ejection hole on the side (#18) where the gas flows out of the hole is twice or less a plasma sheath thickness.

Applicant's claim requirement "twice or less a plasma sheath thickness" is considered intended use in the pending apparatus claims because the sheath thickness

depends on operating parameters. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (*Walter*, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106).

Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (*In re Casey*, 152 USPQ 235 (CCPA 1967); *In re Otto*, 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02). When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (*In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

Claim 10: A shower plate according to claim 9, wherein a diameter of the ejection hole is changed from the side (#19) where the gas flows into the hole toward the side (#18) where the gas flows out of the hole (col. 6, lines 34-39).

Claim 11: A shower plate according to claim 10, wherein the diameter on the side where the gas flows out of the hole is not less than 0.02 mm and is not more than 10 mm (0.2~2 mm, col. 6, lines 34-35).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over '661.

'661 teaches some limitations of (notice the touching ranges):

Claim 12: A shower plate (Fig. 4) having a plurality of ejection holes (#18, col. 6, line 26) adapted to eject a gas (precursor, col. 6, lines 39-54), said shower plate wherein each ejection hole has a portion, on the side (#19) where the gas flows into the hole, having a width which is more than 0.5 mm and is not more than 5 mm (2~15 mm, col. 6, lines 37-38) and a portion, on the side (#18) where the gas flows out of the hole, having a width which is not less than 0.02 mm and is not more than 0.5 mm (0.2~2 mm, col. 6, lines 34-35).

Claim 13: A shower plate according to claim 12, wherein said portion (#18) having the width which is not less than 0.02 mm and is not more than 0.5 mm has a length of 0.2 mm to 2 mm (0.5~5 mm, col. 6, line 35).

Claim 14: A shower plate according to claim 13, wherein said shower plate has a thickness of at least 20 mm ( $T^*$ , col. 6, lines 55-60, being larger than  $T$  3~20 mm, col. 6,

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line 28).

'661 does not explicitly teaches the limitation of the exact ranges:

Claim 12: on the side (#19) where the gas flows into the hole, having a width which is more than 0.5 mm and is not more than 5 mm and on the side (#18) where the gas flows out of the hole, having a width which is not less than 0.02 mm and is not more than 0.5 mm.

Claim 13: a length of 0.2 mm to 2 mm.

Claim 14: a thickness of at least 20 mm.

'661 discloses the claimed invention except for the range of size of the holes and the thickness of shower plate overlap the claimed invention. "In the case where the claimed ranges 'overlap or lie inside ranges disclosed by the prior art' a prima facie case of obviousness exists." See MPEP 2144.05 I.

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over '661, in view of Park (US 20020000196, hereafter '196).

'661 teaches all limitations of claim 12, as discussed above.

'661 does not teach the limitations of:

Claim 18: A shower plate according to claim 12, wherein the peripheral portion of the surface of said shower plate on the side where the gas flows out is projected over the center portion thereof.

'196 is an analogous art in the field of semiconductor deposition (field of the invention; similar to '661 abstract), particularly in uniformity of showerhead ([0007], lines 3-5; similar to '661 col. 2, lines 65-67). '196 teaches a showerhead with a concave bottom (Fig. 8, [0045], lines 4-5).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have replaced flat bottom showerhead in Fig. 4 of '661 with a concave bottom showerhead, as taught by '196.

The motivation would have been to tailor the film characteristics ([0045] to [0046]) in order to improve the uniformity of film thickness, purity and electrical property ([0043] to [0044]).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 2003/0200929 is cited for alumina being more resistant to plasma than quartz.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keath T. Chen whose telephone number is 571-270-1870. The examiner can normally be reached on M-F, 8:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. T. C./  
Examiner, Art Unit 1792

/Michael Cleveland/  
Supervisory Patent Examiner, Art Unit 1792